



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁷ :

C12N 15/56, 9/24, A23K 1/165

A1

(11) International Publication Number:

WO 00/29587

(43) International Publication Date:

25 May 2000 (25.05.00)

(21) International Application Number: PCT/CA99/01093

(22) International Filing Date: 16 November 1999 (16.11.99)

(30) Priority Data:

60/108,504 16 November 1998 (16.11.98) US

(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application

US 60/108,504 (CON)
Filed on 16 November 1998 (16.11.98)

(71) Applicant (for all designated States except US): IOGEN CORPORATION [CA/CA]; 400 Hunt Club Road, Ottawa, Ontario K1V 1C1 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SUNG, Wing, L. [CA/CA]; 2148 Fillmore Crescent, Gloucester, Ontario K1J 6A4 (CA). TOLAN, Jeffrey, S. [CA/CA]; 114 Hawk Crescent, Ottawa, Ontario K1V 9G7 (CA).

(74) Agents: SECHLEY, Konrad, A. et al.; Gowling, Strathy & Henderson, Suite 2600, 160 Elgin Street, Ottawa, Ontario K1P 1C3 (CA).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

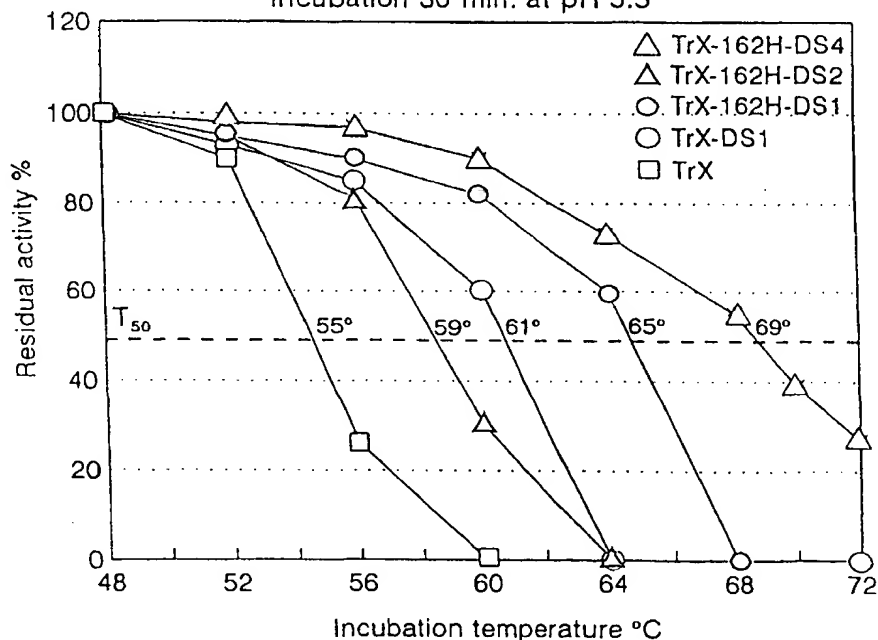
(54) Title: THERMOSTABLE XYLANASES

(57) Abstract

The present invention is directed to thermostable xylanase enzymes that are suitable for feed pelleting applications. The novel xylanase enzymes comprise at least 40 % of their optimal activity from a pH range from about pH 3.5 to about pH 6.0, and from about 40 to about 60 °C, and exhibit at least 30 % of their optimal activity after a pre-incubation step for 30 minutes at 70 °C in the presence of 40 % glycerol. Also disclosed are modified xylanase molecules comprising either a basic amino acid at position 162 (TrX numbering), or its equivalent position in other xylanase molecules, at least one disulfide bridge, or a combination thereof. The thermostable xylanase molecules of the present invention have a physiological temperature and pH optima and are useful as animal feeds additives since they can withstand the heat associated with feed sterilization and pellet formation, yet they exhibit optimal activity within an animal to aid in breakdown of ingested feed.

Thermostability of mutant TrX

Incubation 30 min. at pH 5.5



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						